



US006934858B2

(12) **United States Patent**
Woodhill

(10) **Patent No.:** **US 6,934,858 B2**
(45) **Date of Patent:** **Aug. 23, 2005**

(54) **SYSTEM AND METHOD OF USING THE PUBLIC SWITCHED TELEPHONE NETWORK IN PROVIDING AUTHENTICATION OR AUTHORIZATION FOR ONLINE TRANSACTIONS**

6,574,599 B1 * 6/2003 Lim et al. 704/270

OTHER PUBLICATIONS

Copy of the International Search Report mailed Mar. 23, 2001 for the PCT counterpart application of the above-identified application.

* cited by examiner

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(57) **ABSTRACT**

An authentication or authorization system to facilitate electronic transactions uses simultaneous or substantially simultaneous communications on two different networks to verify a user's identity. When a user logs onto a site, via the internet, a telephone number, either pre-stored or obtained in real time from the visitor, where the visitor can be called essentially immediately is used to set up, via the switched telephone network another communication link. Where the user has multiple communication links available, the telephone call is automatically placed via the authentication or authorization software simultaneously while the user is on-line. In the event that the user has only a single communication link, that individual will have to log off temporarily for purposes of receiving the telephone call. Confirmatory information is provided via the internet to the user. The automatically placed telephone call requests that the user feed back this confirmatory information for verification purposes. The telephone number which is being called is adjacent to the user's internet terminal. The user's response, via the telephone network, can be compared to the originally transmitted confirmatory information to determine whether the authentication or authorization process should go forward.

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 914 days.

(21) Appl. No.: **09/737,254**

(22) Filed: **Dec. 13, 2000**

(65) **Prior Publication Data**

US 2002/0004831 A1 Jan. 10, 2002

Related U.S. Application Data

(60) Provisional application No. 60/170,808, filed on Dec. 15, 1999.

(51) **Int. Cl.**⁷ **H04L 9/32**

(52) **U.S. Cl.** **713/201**

(58) **Field of Search** 713/200–202,
713/186; 379/88.01, 88.02; 340/5.84

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59 Claims, 18 Drawing Sheets

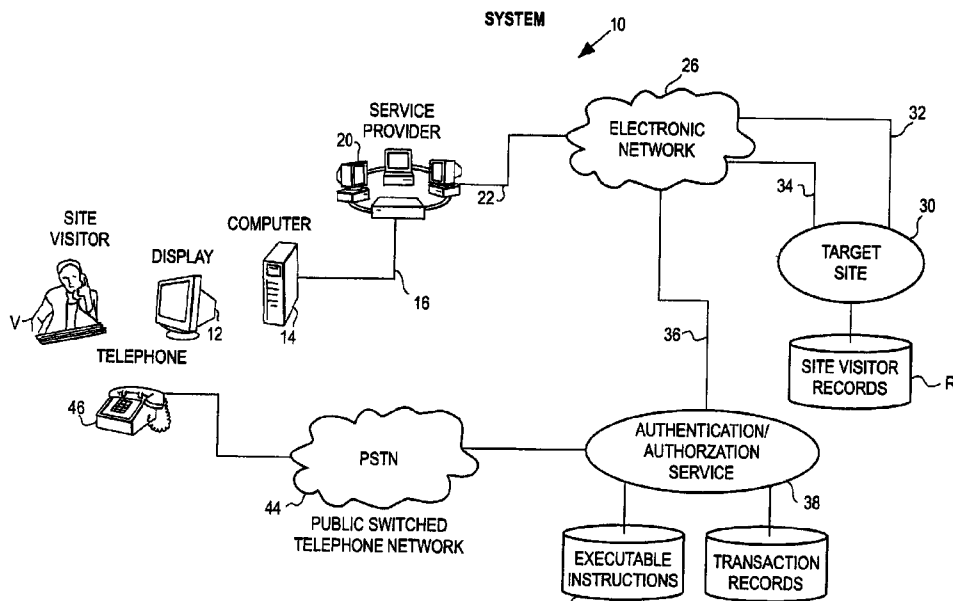
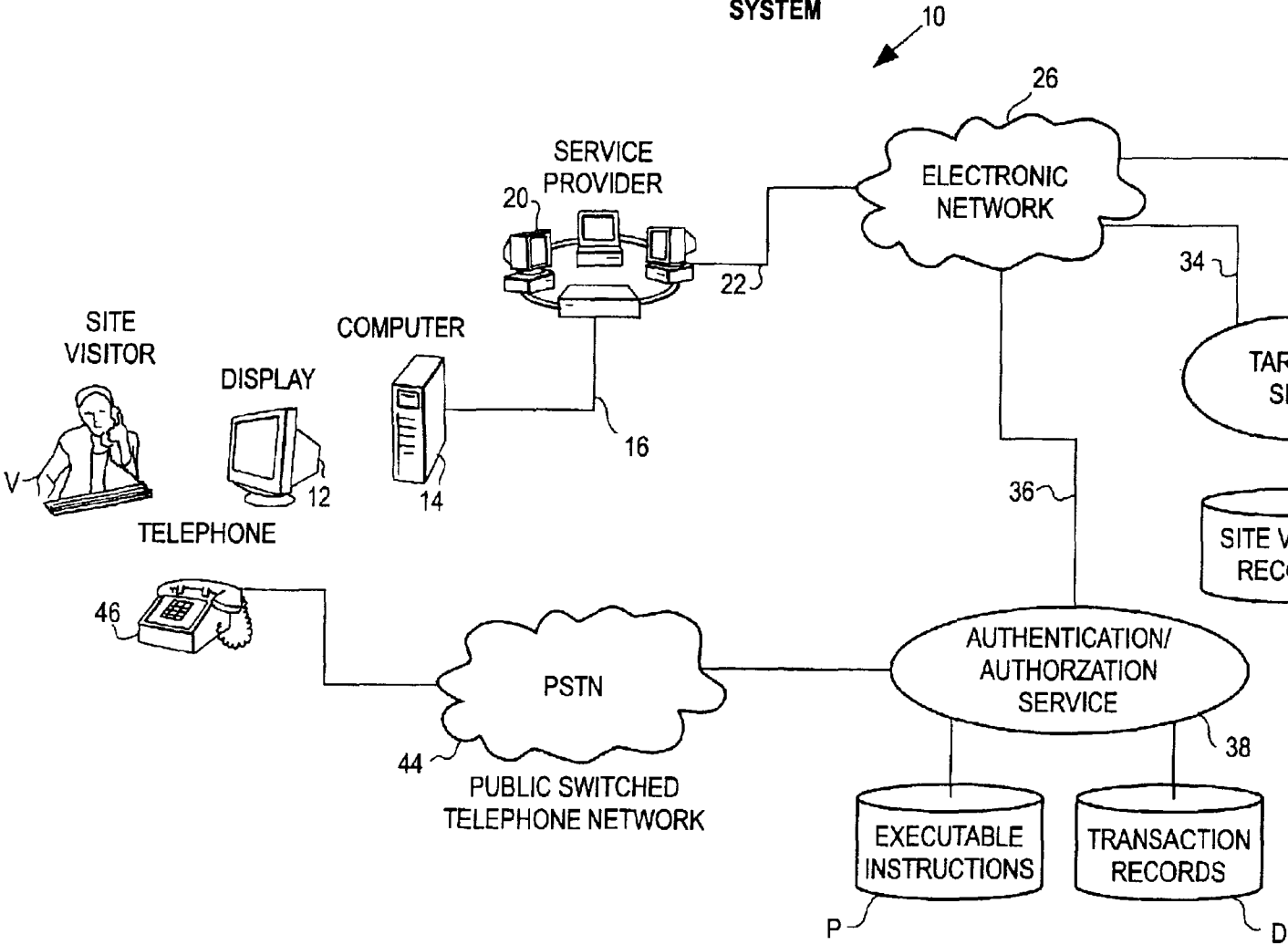


FIG. 1

SYSTEM



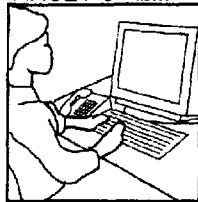
AN OVERVIEW OF THE PROCESS

THE SITE VISITOR BEGINS THE REGISTRATION PROCESS AT THE TARGET SITE...

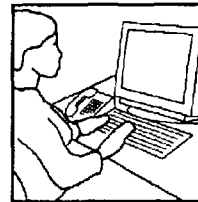
100 →



102 THE SITE VISITOR ENTERS THE TARGET SITE.



104 THE VISITOR REGISTERS ON THE TARGET SITE'S EXISTING REGISTRATION PAGE.

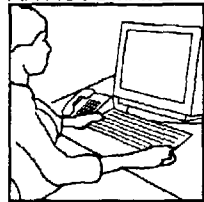


106 THE TARGET SITE CONFIRMS A PHONE NUMBER FOR THE VISITOR:

- THE TARGET SITE MIGHT ASK THE VISITOR IF A PHONE NUMBER STORED IN ITS SITE VISITOR RECORDS IS CORRECT; OR
- ASK THE VISITOR TO TYPE IN A PHONE NUMBER.

FIG. 2A

...IS TEMPORARILY TRANSPORTED WHICH PLACES AN AUTOMATED P...



108 THE AUTHENTICATION/ AUTHORIZATION SERVER (HEREAFTER, "THE SERVER") ASSUMES CONTROL OF THE VISITOR AND ASKS THE VISITOR IF A CALL TO THE PHONE NUMBER WHILE THE VISITOR IS ONLINE.

- IF THE VISITOR ANSWERS "YES," THE ONLINE SESSION CONTINUES. THE SERVER DISPLAYS A CONFIRMATION NUMBER ONSCREEN.
- IF THE VISITOR ANSWERS "NO," THE SERVER:
 - DISPLAYS A CONFIRMATION NUMBER ONSCREEN, AS WELL AS THE URL FOR THE "FINISH REGISTRATION" WEB PAGE.
 - TELLS THE VISITOR TO TAKE THE CONFIRMATION NUMBER AND CALL THE NUMBER.
 - INSTRUCTS THE VISITOR TO RETURN TO THE INTERNET.

FIG. 2

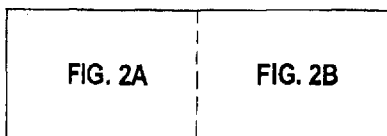
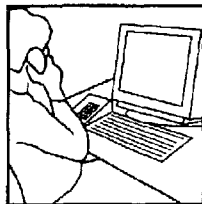


FIG. 2B



110 THE SERVER CALLS THE VISITOR ON THE PHONE:

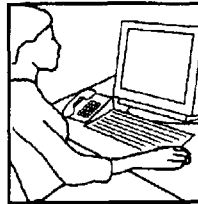
- AN AUTOMATED CALL FIRST CONFIRMS THAT THE CALL RECIPIENT IS THE VISITOR AND IS EXPECTING THE CALL.
- AN AUTOMATED CALL THEN ASKS THE VISITOR TO TYPE THE CONFIRMATION NUMBER DISPLAYED IN THE ONLINE SESSION.



112 OPTIONALLY, AN AUTOMATED CALL CAN TELL THE VISITOR TO SPEAK INTO THE PHONE, SO THAT THE SERVER CAN MAKE ONE OR MORE DIGITAL VOICE RECORDINGS. IN A STANDARD IMPLEMENTATION, THE AUTOMATED CALL MIGHT REQUEST UP TO TWO DISTINCT VOICE RECORDINGS, SUCH AS THE VISITOR RECITING HIS OR HER NAME, AND THEN RECITING AN AGREEMENT TO TERMS.

- VISITORS WHO REMAINED ONLINE DURING THE CALL CAN THEN HANG UP THE PHONE.
- VISITORS WHO HAD TO DISCONNECT FROM THE INTERNET ARE REMINDED TO RETURN TO THE "FINISH REGISTRATION" WEB PAGE AFTER HANGING UP.

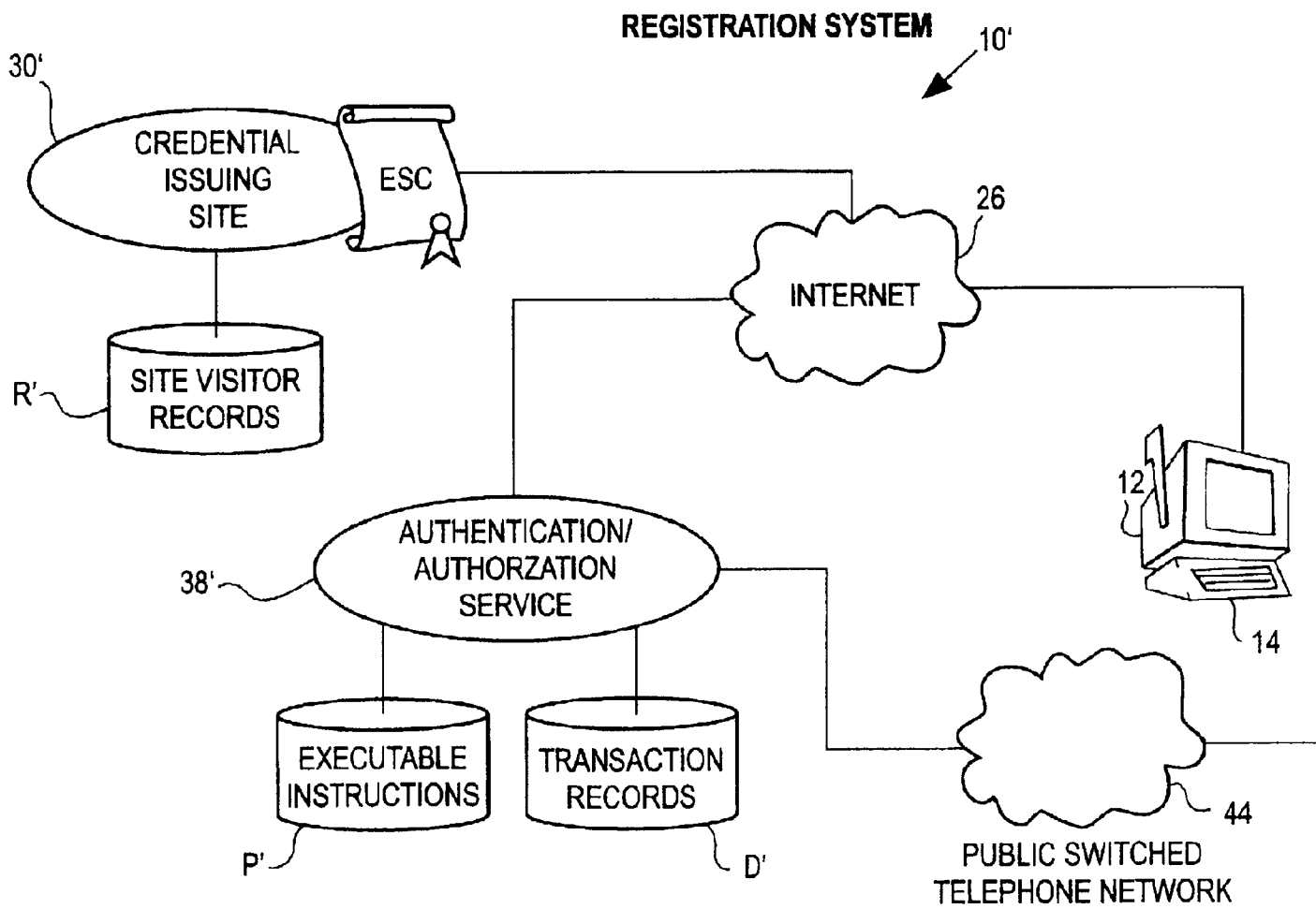
...AND RETURNS TO THE
TO COMPLETE THE PR



114 THE TARGET SITE REGAINS C
VISITOR'S BROWSER AND RE
FROM THE SERVER DESCRIBING
TELEPHONE SESSION.

BASED ON THE SUCCESS OR F
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WHETHER THE VISITOR HAS S
REQUIREMENTS FOR REGISTRA

FIG. 3



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